



ADMINISTRATIVE REPORT

Report Date: June 26, 2019
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Meeting Date: July 9, 2019

TO: Vancouver City Council
FROM: General Manager of Engineering Services
SUBJECT: Updates to On-Street Car Sharing Parking Policy

RECOMMENDATIONS

- A. THAT Council approve the changes to on-street car sharing parking policy as outlined in this report to incentivize car sharing and car sharing using zero emission vehicles;

AND FURTHER THAT Council direct staff to report back on the initial outcomes of these car sharing parking policy changes in fall 2020 as part of the strategy to achieve Big Moves #2 and #3 of the Climate Emergency Response.

- B. THAT Council approve, in principle, changes to the Street and Traffic By-law No. 2849 and Parking Meter By-law No. 2952 as detailed in this report and Appendix A;

AND FURTHER THAT Council authorize the Director of Legal Services to prepare and bring forward for enactment amendments to the Street and Traffic By-law No. 2849 and the Parking Meter By-law No. 2952 as generally outlined in Appendix A.

REPORT SUMMARY

With approximately 34% of Vancouver adults having a car sharing membership, Vancouver is a car sharing leader. Car sharing, when used in the context of a multi-modal transportation network like Vancouver's, has been shown to be an effective way to reduce greenhouse gas emissions, vehicle kilometres travelled (vkt), and vehicle ownership levels. Car sharing also enables more affordable lifestyles; a 2017 car sharing survey conducted by Vancity found that 62% of respondents use car sharing as a way to save money.

Building upon the success of car sharing in Vancouver, staff recommend a number of financial and convenience incentives to help achieve Big Move #2 (two-thirds of trips in Vancouver by active transportation and transit by 2030) and Big Move #3 (50% of kilometres driven on Vancouver's roads to be by zero emission vehicles) of the Climate Emergency Response. These incentives are:

1. Allow one-way car sharing vehicles to end trips in metered parking areas (Climate Emergency Action 8 e);
 - 1A. Allow a limited number of one-way zero emission car sharing vehicles to end trips in metered parking areas at a 50% discount;
2. Allow unpaid stopovers for actively rented car sharing vehicles in metered parking areas (Climate Emergency Action 8 e);
3. Waive parking permit fees for zero emission car sharing vehicles (Climate Emergency Action 11 b); and,
4. Charge a flat rate for reserved parking spaces for zero emission car sharing vehicles.

Staff further recommend a report back to Council in the fall of 2020 which may include recommendations to amend these policies based upon the on-street impacts observed, car sharing organization uptake, and public feedback received.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

Council regulates stopping and parking on City streets in Street and Traffic Bylaw #2849 and Parking Meter Bylaw #2952.

In 2010, Council set rates for reserved on-street car sharing parking spaces and formalized the issuance of parking permits to car sharing vehicles that allows them to park in Residential Parking Permit (RPP) areas.

Transportation 2040 supports increased car sharing, and states that the City should continue to make priority on-street locations available.

In April 2019, Council approved a Climate Emergency Response report. Relevant sections of this report include:

- Big Move #2, which is to accelerate the existing sustainable transportation target by 10 years, so that by 2030, two-thirds of trips in Vancouver will be by active transportation and transit;
- Big Move #3, which calls for 50% of the kilometres driven on Vancouver's roads to be by zero emission vehicles by 2030;
- Accelerated action 8 e, which proposes to update bylaws and to enter into agreements that allow car sharing vehicles to end their trips or have stop-overs in metered parking areas; and,
- Accelerated action 11 b, which proposes to not charge parking permit fees for zero emission car sharing vehicles.

CITY MANAGER'S/GENERAL MANAGER'S COMMENTS

The City Manager recommends approval of the foregoing.

REPORT

Background/Context

Vancouver is a world leader in car sharing. Today, there are over 3500 car sharing vehicles operating within the Metro Vancouver area, with the majority of those operating within Vancouver city limits. Moreover, the City's 2018 Transportation Panel survey has indicated that approximately 34% of Vancouver adults (18+) have a car sharing membership.

The City has a long and supportive history with car sharing with the first car sharing service starting in 1997. Since that time, the City has made several policy and practice initiatives including:

- Selling parking permits to car share operators that allow car sharing vehicles to access parking in residential neighbourhoods – this allows car sharing services to be located near members' homes;
- Allowing car share operators to reserve on-street parking spaces, with a fee commensurate to the market value of the space, to help car sharing services reach members and destinations; and,
- Allowing auto parking to be reduced with the provision of car sharing services in new developments.

Since car sharing first began in the City of Vancouver, the types of services offered have evolved. Originally, all car sharing vehicles were operated following the “two-way” model. In this model, vehicles were taken from and returned to the same home-based location. Today, there are two car share operators that offer two-way services: Modo and Zipcar. Starting in 2011 however, a new type of car sharing service which followed the “one-way” model was introduced. In this model, vehicles may be picked up in one location and dropped off in another. One-way car sharing has grown rapidly since its introduction and now makes up 80% of the total car sharing fleet in Vancouver. Today, there are two car share operators that offer one-way services: car2go and Evo.

There is a growing body of research that indicates that one-way car sharing is used differently and has different benefits compared to two-way car sharing. While both the one-way and two-way models of car sharing have been found to have greenhouse gas, affordability, transportation (lower vkt), and parking benefits (lower parking demand), these benefits are typically more pronounced with two-way car sharing. For example, it has been estimated that households participating in two-way car sharing in Vancouver can reduce transportation-related greenhouse gas emissions by up to 54% while the highest reduction estimate for one-way car sharing is 15%. That said, as can be surmised through its rapid growth, one-way car sharing is an option that is appealing to a larger portion of the population. As both two-way and one-way car share companies transition their fleets to zero emission vehicles, the emission reduction benefits will increase. Additional research on the benefits of one-way and two-way car sharing can be found in Appendix B.

The benefits of car sharing are only realized when the service is part of a robust multi-modal network that supports walking, cycling, and transit. Car sharing allows their members to choose less costly and more sustainable modes such as walking, cycling and transit, but provides access to a motor vehicle when necessary.

CleanBC, the BC Government's new climate plan, aims to help British Columbians travel less by private vehicles and switch to zero emission vehicles over time – objectives that are well aligned with this report. CleanBC includes many specific policies and initiatives to support these objectives, including the zero emission vehicle standard, the low carbon fuel standard, zero emission vehicle incentives, the carbon tax, and the active transportation strategy.

Strategic Analysis

Car sharing has already helped Vancouver move towards its transportation targets. To build on that success, staff have identified a number of car sharing policy changes that are anticipated to advance the goals of the Climate Emergency Response. Given the unique and novel nature of some of these policy changes, staff recommend reporting back in fall 2020 in conjunction with Engineering's strategy to achieve Big Moves #2 and #3 of the Climate Emergency Response. In the report back, staff may recommend policy updates based on the on-street impacts observed, car sharing organization uptake, and public feedback received.

Policy Change 1: Allow one-way car sharing vehicles to end trips in metered parking areas (Climate Emergency Action 8 e.)

Currently, car sharing vehicles are permitted to park in Resident Permit Parking (RPP) and Resident Parking Only (RPO) zones. This works well when users park near their home or visit friends/relatives in residential areas. However, this often does not provide convenient options when car sharing vehicles are used for trips to commercial areas for activities such as shopping and dining. This may also lead to extra travel by car sharing vehicles that are searching for dedicated space. To address this issue, it is recommended that a mechanism be implemented to facilitate one-way car sharing vehicles ending their trips in metered parking spaces.

One-way car sharing organizations will be required to pay for the full cost of metered parking at these locations. This can be implemented through an agreement with each individual car sharing organization, including a deposit and a mechanism to collect fees at a later date.

The two main concerns staff identified with this policy change are that car sharing vehicles may not turn over frequently, and that they may bunch together in certain areas. However, when looking into these concerns further staff found that:

- Comparing the length of stay of car sharing vehicles to those of general vehicles during metered hours, it was found that 90% of stays for car sharing vehicles were under two hours, similar to the stays of general vehicles at parking meters;
- Although some longer term stays may occur, this is mitigated by the fact that a car sharing organization will have a financial incentive to have vehicles move as soon as possible as they will be paying the metered rate – currently, metered rates vary from \$1/hour to \$9/hour with the highest rates being present in the most desirable locations; and,
- Car sharing organizations currently employ relocation teams to address bunching of vehicles and/or vehicles that stay in one position for a long period of time.

If approved, Vancouver would not be the first municipality to allow car sharing vehicles to park or end their trips at meters. Similar systems have been put in place in Calgary, Portland, OR, Washington, DC, and Seattle, WA. A post implementation study by the City of Seattle found that allowing one-way car sharing vehicles to park at meters did not adversely affect neighbourhood business district access. Additionally, it was found that one-way car sharing vehicles typically parked for less time than most other vehicles.

In early June 2019, staff also presented this proposed policy change at a Business Improvement Association (BIA) Partnership meeting (open to all BIAs). The BIA representatives in attendance at this meeting identified some concerns and suggestions but were generally in support of this proposal. If approved by Council, staff will report back on future feedback received from BIAs, as well as individual businesses, in the fall of 2020.

Policy Change 1A: Allow zero emission one-way car sharing vehicles to end trips in metered parking areas at a 50% discount

To help reach the City's Climate Emergency goal of having 50% of vkt be by zero emission vehicles by 2030 (Big Move #3), staff recommend offering metered parking at a 50% discount to zero emission one-way car sharing vehicles. Vehicles that solely use battery or hydrogen fuel cell technology will automatically be eligible for this incentive. If a car sharing organization wants to add a plug-in hybrid to their fleet and qualify for this incentive, they will need to include a plan showing how it will be regularly charged so as to operate at zero-emissions most of the time. The significant savings in parking costs is expected to encourage one-way car sharing organizations to start using these vehicles.

To limit the potential forgone parking revenue to the City, it is recommended that this incentive be managed by issuing a maximum of 50 new permits per year, per organization, each valid for a five-year term, and that this discount no longer be offered after the end of 2024. Under these restrictions, an individual car sharing organization could have a maximum of 250 active permits in 2024.

Policy Change 2: Allow unpaid stopovers for actively rented car sharing vehicles in metered parking areas (Climate Emergency Action 8 e.)

Staff recommend allowing car sharing vehicles to have free stop-overs at metered parking spaces, up to a maximum of two hours, while they are actively rented. This incentive is expected to be utilized mainly by two-way car sharing vehicles, but may be used by one-way car sharing as well. When actively rented, car sharing members are usually paying for their vehicle rental by the minute or hour at a higher rate than most City metered parking. Accordingly, there is a financial incentive to keep stays as short as necessary. In instances where car sharing vehicles are rented for a long time period (e.g. by the day), the length of stay will be capped by the two hour limit.

The number of vehicles taking advantage of this incentive at a given time in a particular area is expected to be relatively low. Therefore, the revenue forgone by the City for this policy change is expected to be minor.

Policy Change 3: Waive parking permit fees for zero emission car sharing vehicles (Climate Emergency Action 11 b.)

To help achieve the City's Climate Emergency zero emission vkt goals (Big Move #3), it is recommended that the parking permit fees for a number of zero emission car sharing vehicles be waived. Currently, the permit costs \$77.19 + GST per year. The savings in permit costs is expected to encourage adoption of zero emission vehicles within car sharing fleets. Vehicles that solely use battery or hydrogen fuel cell technology will automatically be eligible for this incentive. If a car sharing organization wants to add a plug-in hybrid to their fleet and qualify for this incentive, they will need to include a plan showing how it will be regularly charged so as to operate at zero-emissions most of the time.

To limit the potential forgone parking revenue to the City it is recommended that this incentive be managed by issuing a maximum of 50 new permits per year, per organization, each valid for a five-year term, and that this discount be no longer offered after the end of 2024. Under these restrictions, an individual car sharing organization could have a maximum of 250 active permits in 2024.

Policy Change 4: Charge a flat rate for reserved parking spaces for zero emission car sharing vehicles.

Current car sharing policy allows for a metered parking space to be reserved for the exclusive use of car sharing vehicles at a cost of 66% of the total potential revenue for that space. For a space that is \$1/hour between 9 AM and 10 PM, this is approximately \$3000/year. For a space that is \$5/hour, this is approximately \$15,000/year, an amount which has been proven to be cost prohibitive for all car sharing organizations; no spaces have ever been reserved for this amount.

To allow and encourage zero emission car sharing vehicles to take advantage of this space, it is recommended that dedicated spaces be provided at a lower, flat rate which is based on off-street commercial parking space costs.

Proposed fees for reserved spaces for zero emission car sharing vehicles based on off-street rates:

- i. Downtown + South East False Creek: \$3000 (reserved off-street commercial space is approximately \$1500 – \$4500/year)
- ii. Metro Core outside of Downtown/SEFC: \$1800 (reserved off-street commercial space is approximately \$1200 - \$2400/year)
- iii. Outside Metro Core: \$900 (reserved off-street commercial space is approximately \$600 - \$1200/year)

A map of the above noted areas has been included in Appendix C.

To limit the potential parking revenue forgone by the City, it is recommended that no more than 50 of these spaces be created at these lower rates at this time and that the lower, flat rates not be offered beyond the end of 2024. It is also recommended that these lower rates be in place for a term of at least five years.

Implications/Related Issues/Risk

Financial

Proposed Policy Change 1 (one-way car sharing at meters) is expected to generate additional metered revenue. Although it is difficult to predict actual uptake of car sharing vehicles parking at metered parking spaces, it is estimated that monthly fees of \$150,000 to \$250,000 may be collected. This revenue forms part of the 2019 operating budget.

Proposed Policy Change 1A (50% discount at meters for zero emission car sharing vehicles), may reduce the amount of revenue collected, but given the proposed limits, this will likely not exceed a peak of \$20,000/month in 2024.

The number of vehicles that will be taking advantage of proposed Policy Change 2 (free parking at meters for actively rented car sharing vehicles) at any given time in a particular area is expected to be relatively low. The revenue forgone by the City for this policy change is expected to be minor as few existing parkers are expected to be displaced.

The maximum annual forgone revenue for proposed Policy Change 3 (waived parking permit fees for zero emission car sharing vehicles) is \$84,000/year. This amount would only be realized if all four current car sharing organizations provided the maximum amount of zero emission vehicles every year for five years. The forgone revenue has the potential to be offset by general growth in car sharing.

Proposed Policy Change 4 (lower flat rates for dedicated zero emission car sharing vehicle spaces) is not expected to result in significant reduced revenue given the proposed limit of 50 spaces (there are currently 11,200 metered spaces in the city).

As each policy change becomes more established, staff expect to be able to provide more precise revenue and cost estimates which will be included in subsequent years' operating budgets.

Climate Emergency

Policy Change 1 will make one-way car sharing more attractive to Vancouver residents. Every new household that takes advantage of one-way car sharing can reduce their transportation emissions by up to 15%. Policy Change 2 will make two-way car sharing more attractive to Vancouver residents. Every new household that takes advantage of two-way carsharing can reduce their transportation emissions by up to 54%.

To illustrate the potential impact, the policy changes could result in a 10% to 20% increase in the number of households participating in car sharing, with 80% of that growth going to one-way car share companies, and 20% to two-way companies. Under this scenario, an additional 8,400 to 16,800 households would

take advantage of one-way car sharing, and it would reduce carbon emissions between 1,400 and 2,700 tonnes per year. Further, an additional 2,100 to 4,200 households would take advantage of two-way car sharing, and it would reduce carbon emissions between 900 and 1,800 tonnes per year. The total reduction in carbon emissions would be between 2,300 and 4,600 tonnes per year.

Policy Changes 1A, 3 and 4 will encourage car share companies to transition their fleets to zero emission vehicles. If the car share companies add between 25 and 75 vehicles per year to take advantage of the policies, the total reduction in carbon emissions would be between 900 and 2,700 tonnes per year.

Providing greater access to zero emission vehicles to drivers is also expected to improve confidence and adoption of such vehicles more broadly in the general public.

Legal

In order to facilitate this trial, a number of bylaw amendments will be required:

Street and Traffic By-law No. 2849:

- Updates to allow for \$0 parking permits for zero emission car sharing vehicles;
- Updates to allow for the flat rates for dedicated spaces for zero emission car sharing vehicles at metered parking spaces.

Parking Meter By-law No. 2952:

- Add definitions of shared vehicles and shared vehicle organizations;
- Allow actively rented car sharing vehicles to have unpaid stopovers at meters up to a maximum of two hours;
- Authorize shared vehicle organizations that operate one-way shared vehicles to enter into agreements that allow them to pay for metered parking charges through an agreement with the City;
- Allow discounts for parking in metered parking areas for a limited number of one-way zero emission car sharing vehicles.

A draft of all the proposed amendments to Street and Traffic By-Law No. 2849 and Parking Meter By-law No. 2952 can be found in Appendix A.

CONCLUSION

Car sharing has been successful in Vancouver and has helped the City move toward its transportation targets. Staff recommend that the City continue to build on this success to help achieve its Climate Emergency goals by offering the financial and convenience incentives outlined in this report. Staff further recommend a report back to Council in the fall of 2020 to further amend these policy changes based upon the on-street impacts observed, car sharing organization uptake, and public feedback received.

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**DRAFT By-law to amend Street and Traffic By-law No. 2849
regarding Updates to Shared Vehicle Parking Privileges**

Note: A By-law will be prepared generally in accordance with the provisions listed below, subject to change and refinement prior to posting.

1. This By-law amends the indicated provisions of the Street and Traffic By-law.
2. In section 2, Council inserts the following definitions in correct alphabetical order:
 - (a) **“One-way Shared Vehicle Service”** means a shared vehicle system that allows its members to begin and end their rental periods at any lawful and authorized space within the operating area of the shared vehicle organization.”; and
 - (b) **“Zero Emission Vehicle”** means vehicles approved by the City Engineer as zero emission vehicles.”.
3. Council strikes out section 23.5 and substitutes:

“23.5 The annual fee for a permit authorizing parking issued under section 23.2 and additional parking privileges under Parking Meter By-law 2952 for each shared vehicle in all areas of the City is \$77.19, except that for up to 50 zero emission vehicles per shared vehicle organization per year until December 31, 2024, the fee will be waived for 5 years.”.
4. Council strikes out section 23.6 (d) and replaces it with:

“(d) For reserved shared vehicle parking space that the city would otherwise meter, that sum which is equal to the maximum annual revenue the parking space would have generated if metered during the same calendar year in which the city issues the reserved shared vehicle parking permit, except that in the case of a reserved shared vehicle parking space that the city would otherwise meter to be used exclusively by zero emission vehicles, the annual fee will be held at the following amounts for five years for the first 50 spaces of this type designated prior to December 31, 2024:

(i)	Downtown area and Southeast False Creek as described in the Parking By-law	\$3000
(i)	Metro Core, being the area west of Clark Drive, north of 16th Avenue, east of Burrard Street, and south of Burrard Inlet, except the Downtown Area and Southeast False Creek	\$1800
(ii)	Remainder of city outside Metro Core	\$900”.

**DRAFT By-law to amend Parking Meter By-law No. 2952
regarding Updates to Shared Vehicle Parking Privileges**

Note: A By-law will be prepared generally in accordance with the provisions listed below, subject to change and refinement prior to posting.

1. This by-law amends the indicated provisions of the Parking Meter By-law No. 2952.
2. In section 2, Council inserts the following definitions in correct alphabetical order:
 - (a) ““One-way Shared Vehicle Organization” means a shared vehicle organization that allows its members to begin and end their rental periods trips at any lawful and authorized space within the operating area of the shared vehicle organization.”;
 - (b) ““Shared Vehicle” means a four-wheeled automobile, van, or pick-up truck owned and operated by a shared vehicle organization.”;
 - (c) ““Shared Vehicle Organization” means a legal entity whose principal business objective is to provide its members, for a fee, with a car-sharing service by which such members have access to a fleet of shared vehicles which they may reserve for use on an hourly basis, and which the City Engineer has approved.”; and
 - (d) ““Zero Emission Vehicles” means vehicles approved by the City Engineer as zero emission vehicles.”.
3. In section 6, Council:
 - (a) in section 6(1), adds the following new subsection:

“(d) Shared vehicles belonging to a one-way shared vehicle organization that are parked in a metered space by a member at the end of each of their rental periods, provided that the one-way shared vehicle organization has an agreement with the City Engineer to pay the metered parking charges. The shared vehicle may remain parked in the metered space, without time limit, as long as it is not in contravention of any other stopping or parking regulations. For zero emission vehicles up to a maximum of 50 vehicles per one-way shared vehicle organization per year until December 31, 2024, metered parking charges to be paid by the one-way shared vehicle organization will be reduced by 50% for 5 years.”;
 - (b) adds a new section 6(6) as follows:

“(6) Members of shared vehicle organizations may use a metered space for up to 2 hours without charge to park the shared vehicle during the member’s rental period.”.

Benefits of Car Share - General

Class of Benefit	Benefit	Source
Affordability	A 2017 VanCity Survey found that 62% of respondents cited saving money as a common reason for using car share [Vancouver/BC Specific]	2018 Changing Gears: Exploring the car sharing culture shift in Metro Vancouver (https://www.vancity.com/SharedContent/documents/News/Vancity-Report-Car-Sharing-Jan2018.pdf)
Convenience	A 2017 VanCity Survey found that 95% of respondents cited convenience as a common reason for using car share [Vancouver/BC Specific]	2018 Changing Gears: Exploring the car sharing culture shift in Metro Vancouver (https://www.vancity.com/SharedContent/documents/News/Vancity-Report-Car-Sharing-Jan2018.pdf)

Benefits of Car Share – One-way Specific

Class of Benefit	Benefit	Source
GHG Reduction	Households participating in one-way car share programs reduce their annual vehicle-related GHGs by up to 15% on average [Vancouver Specific]	Martin, E, Shaheen, S. 2016. Impacts of car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions (http://innovativemobility.org/wp-content/uploads/2016/07/Impactsofcar2go_FiveCities_2016.pdf)
Parking	One car sharing vehicle replaces 2 – 9 vehicles [Vancouver Specific]	Martin, E, Shaheen, S. 2016. Impacts of car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions (http://innovativemobility.org/wp-content/uploads/2016/07/Impactsofcar2go_FiveCities_2016.pdf)
Parking	One-way car sharing member households were shown to reduce vehicle ownership levels by 10% [Vancouver Specific]	Namazu, M., Dowlatabadi, H., 2018. Vehicle ownership reduction: a comparison of

		one-way and two-way carsharing systems. Transp. Policy 64, 38–50.
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Benefits of Car Sharing – Two- way Specific

Class of Benefit	Benefit	Source
GHG Reduction	Households participating in two-way car share programs reduce their annual vehicle-related GHGs by up to 54% on average [Vancouver Specific]	Namazu, M., Dowlatabadi, H., 2015. Characterizing the GHG emission impacts of carsharing: a case of Vancouver. Environ. Res. Lett. 10 (12), 1–10. https://doi.org/10.1088/1748-9326/10/12/124017
Parking	One car sharing vehicle replaces 9 – 13 vehicles	Shaheen, S. Carsharing Trends and Research Highlights https://www.epa.gov/sites/production/files/2017-06/documents/05312017-shaheen.pdf
GHG Reduction	Households participating in two-way car sharing reduce their GHG emissions by 34% - 41%	Shaheen, S. Carsharing Trends and Research Highlights https://www.epa.gov/sites/production/files/2017-06/documents/05312017-shaheen.pdf
Affordability	US Households participating in two-way car sharing observed monthly household savings of \$154 - \$435	Shaheen, S. Carsharing Trends and Research Highlights https://www.epa.gov/sites/production/files/2017-06/documents/05312017-shaheen.pdf
Parking	Two-way car sharing member households were estimated to reduce vehicle ownership levels by 50%[Vancouver Specific]	Namazu, M., Dowlatabadi, H., 2018. Vehicle ownership reduction: a comparison of one-way and two-way carsharing systems. Transp. Policy 64, 38–50.

Map of Dedicated On-Street Car Sharing Billing Areas

